DISCIPLINE: WAN/LAN Protocols

Discipline Roadmap for: WAN/LAN Protocols

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

WAN Protocols

MPLS ──────────────────────────────────►

Frame Relay ──────────────────────►

ATM ──────────────────────►

SNA

Ethernet ──────────────────────►

LAN Protocols

Ethernet
Gigabit Ethernet ─── Ethernet (Switched) ──────────────►
TCP/IP
IPX/SPX   TCP/IP
LAT-DEC
SNA
AppleTalk

	Shared	Agency
	✓	✓

Retirement Targets

Mainstream Platforms (must be supported)

WAN:
ATM, Frame Relay, Ethernet, MPLS

LAN:
Ethernet (switched), TCP/IP

Containment Targets

→SNA (WAN), SNA (LAN), IPX/SPX, AppleTalk, LAT-DEC

Emerging Platforms

MPLS

Implications and Dependencies

Individual agencies should conduct an evaluation for moving applications from SNA to current technologies.

Roadmap Notes

A business case analysis will be conducted to determine the timing of scheduling SNA for retirement. SNA investments should be curtailed pending completion of this business case analysis.

DISCIPLINE: WAN/LAN Protocols (Cont'd)
Discipline Roadmap for: WAN/LAN Protocols

- **Discipline Boundaries:**
  - ❑ WAN/LAN
- **Discipline Standards:**
  - ❑ None.
- **Migration Considerations:**
  - ❑ Those agencies with SNA networks should consider converting to IP Network when feasible.
- **Exception Considerations:**
  - ❑ None.
- **Miscellaneous Notes:**
  - ❑ May want to establish another Discipline for WAN Transport in the future.
- **Established Date:**
  - ❑ April 28, 2004
- **Date Last Reviewed:**
  - ❑ July 26, 2006
- **Next Review Date:**
  - ❑ July 2007

DISCIPLINE: Hardware— Switches & Routers

Discipline Roadmap for: Switches & Routers

DOMAIN: COMMUNICATION SERVICES

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**
Switches 3COM switches 6506 Switch Cisco Switches catalyst (2916, 2924, 4003, 4006, 6513, 3550) DMV Core Switches Avaya Nortel Accelar 1150R-B HP Nortel Switches (350,450) Enterasys	Cisco Nortel Enterasys HP	Market Watch
Routers 6506 Switch/Router Cisco 4000 Routers Cisco Routers (1650,2500, 2600, 2620, 3660, 3600, 1750, DSL Cisco 840) Nortel ARNs	Cisco Nortel Enterasys HP	

Shared	**Agency**
✓	✓

Retirement Targets	**Mainstream Platforms** (must be supported)
	Cisco, Nortel, Enterasys, HP

Containment Targets	**Emerging Platforms**
3COM, Avaya	

Implications and Dependencies

Only select from products that support industry standards.

Roadmap Notes

Identify industry standards

- **Discipline Boundaries:**
  - ❑ Equipment room, MDF-IDF equipment. Only wiring closets.
- **Discipline Standards:**
  - ❑ IETF routing standards.
- **Migration Considerations:**
  - ❑ TBD
- **Exception Considerations:**
  - ❑ TBD
- **Miscellaneous Notes:**
  - ❑ None.
- **Established Date**
  - ❑ October 16, 2003
- **Date Last Updated:**
  - ❑ July 26, 2006
- **Next Review Date:**
  - ❑ July 2007

DISCIPLINE: Remote Access Methods & Clients

Discipline Roadmap for: Remote Access Methods & Clients

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Remote Access Methods
VPN
Remote Access Server (dial up)

IPSec VPN ————————————→

SSL ————————————————→

Clients
SSL Client
Citrix Metaframe XPA
Cisco VPN Client
Nortell VPN Client

Client is dependent upon remote access method.

Shared	Agency
	✓

Retirement Targets	**Mainstream Platforms** (must be supported)
	IPSec VPN, and SSL

Containment Targets	**Emerging Platforms**
Direct Dial (Back-up or maintenance Access)	

Implications and Dependencies

Discipline is dependent upon the results of the Security Subcommittee disciplines. Managed services for access to agency networks should adhere to the IPSec VPN & SSL industry standards.

Roadmap Notes

We will review this discipline when the Security Subcommittee has published its disciplines.

DISCIPLINE: Remote Access Methods & Clients (Cont'd)

Discipline Roadmap for: Remote Access Methods & Clients

- **Discipline Boundaries:**
  - ❑ Remote Access to individual agency's networks.
- **Discipline Standards:**
  - ❑ Restricted to approved industry standards.
- **Migration Considerations:**
  - ❑ Agency dependent.
- **Exception Considerations:**
  - ❑ Secured direct dial access may be acceptable when no other network access is available.
- **Miscellaneous Notes:**
  - ❑ None
- **Established Date:**
  - ❑ December 15, 2004
- **Date Last Updated:**
  - ❑ July 26, 2006
- **Next Review Date:**
  - ❑ July 2007

DISCIPLINE: LAN Topologies

Discipline Roadmap for: LAN Topologies

DOMAIN: COMMUNICATION SERVICES

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

100 Mb HD Shared Ethernet
100Mb FD Switched Ethernet
Collapsed Backbone Ethernet-100
Ethernet 10/100
Gigabit Switched Ethernet
IBM Token Ring

Ethernet (Switched)

	Shared	Agency
	✓	✓

Retirement Targets

→ Token Ring

Mainstream Platforms (must be supported)

Ethernet

Containment Targets

Emerging Platforms

Implications and Dependencies

Minimum 100 Mb

Roadmap Notes

- **Discipline Boundaries:**
  - ❑ TBD
- **Discipline Standards:**
  - ❑ TBD
- **Migration Considerations:**
  - ❑ TBD
- **Exception Considerations:**
  - ❑ TBD
- **Miscellaneous Notes:**
  - ❑ None.
- **Next Review Date**
  - ❑ July 2007
- **Established Date**
  - ❑ October 8, 2003
- **Date Last Updated:**
  - ❑ July 26, 2006

DISCIPLINE: LAN Wiring

Discipline Roadmap for: LAN Wiring

DOMAIN: COMMUNICATION SERVICES

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

CAT 3 Wiring
CAT 4 Wiring
CAT 5 Wiring
Cat 5E Wiring —————————————

CAT 6 Wiring ———— (New Installation) ——————————→

CAT 5E Wiring (Existing) ——————————→

Multi-Mode Fiber Optic Cable
Hybrid Mult-Mode/Single Mode Fiber

Fiber (distance)

Shared	Agency
✓	✓

Retirement Targets

Mainstream Platforms (must be supported)

CAT 5E, CAT 6

Containment Targets

 CAT 3, CAT 4, CAT 5

Emerging Platforms

Wireless LANs

Implications and Dependencies

Roadmap Notes

Need LAN Wiring specification template

DISCIPLINE: LAN Wiring (Cont'd)
Discipline Roadmap for: LAN Wiring

- **Discipline Boundaries:**
    - Building wiring horizontals and verticals.
- **Discipline Standards:**
    - National Electric Code, BICSI method, TIA. See proposed SC LAN wiring standards.
- **Migration Considerations:**
    - Replace as required.
- **Exception Considerations:**
    - TBD
- **Miscellaneous Notes:**
    - None.
- **Established Date:**
    - October 8, 2003
- **Date Last Reviewed:**
    - July 26, 2006
- **Next Review Date:**
    - July 2007

DISCIPLINE: Wireless LAN Protocols

Discipline Roadmap for: Wireless LAN Protocols

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Protocol
802.11a ⟶
802.11b ⟶
802.11g ⟶

Market Watch

Shared	Agency
	✓

Retirement Targets

Mainstream Platforms (must be supported)

802.11a/b/g

Containment Targets

Emerging Platforms

802.11n

Implications and Dependencies

Roadmap Notes

DISCIPLINE: Wireless LAN Protocols (Cont'd)

Discipline Roadmap for: Wireless LAN Protocols

- **Discipline Boundaries:**
  - ❑ This standard is for agency LAN access.
- **Discipline Standards:**
  - ❑ Restricted to approved ITE industry standards.
- **Migration Considerations:**
  - ❑ None
- **Exception Considerations:**
  - ❑ None
- **Miscellaneous Notes:**
  - ❑ Agencies should be aware of security risks involved with using wireless communications.
- **Established Date:**
  - ❑ December 15, 2004
- **Date Last Updated:**
  - ❑ July 26, 2006
- **Next Review Date:**
  - ❑ July 2007

DISCIPLINE: Enterprise Telecommunications Video

Discipline Roadmap for: Video

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

H.323
H.320

Market Watch

| | **Shared** ✓ | **Agency** ✓ |

Retirement Targets

Mainstream Platforms (must be supported)

H.323

Containment Targets

H.320

Emerging Platforms

H.26x

Implications and Dependencies

Products on state term contract should be upward compatible with H.26x.

Roadmap Notes

DISCIPLINE: Enterprise Telecommunications (Cont'd)

Discipline Roadmap for: Video

- **Discipline Boundaries:**
  - Protocol for inter-agency video communications.
- **Discipline Standards:**
  - H.323
- **Migration Considerations:**
  - There is a large installed base of H.320 that exists in South Carolina State Government. As this base becomes obsolete, it should be replaced with H.323.
- **Exception Considerations:**
  - H.320 is acceptable when needed for compatibility with other systems or IP is not availability.
- **Miscellaneous Notes:**
  - Gateways between H.320 and H.323 are available.
- **Established Date**
  - August 25, 2004
- **Date Last Updated:**
  - July 26, 2006
- **Next Review Date:**
  - July 2007

DISCIPLINE: Directory, Network OS

Discipline Roadmap for: Directory, Network OS

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Directories
MS Active Directory
IBM SecureWay Directory (LDAP) : 3.2
Novell e-directory

→ LDAP Compliant ———————————→

NOS
Novell Netware (3.12, 5.0, 5.1, 6.0) ———→ Novell Netware (6.0+)   Novell Services on Linux Platform
MS WIN 2000 Server
MS WIN NT Server 4.0 ———————→ MS WIN Server 2000 (+) ———→ MS WIN Server 2000 (+)

Shared	Agency
✓	✓

Retirement Targets	**Mainstream Platforms** (must be supported)
	Novell Netware (6.0+), MS WIN Server 2000(+)

Containment Targets	**Emerging Platforms**
Novell Netware (pre 6.0), MS WIN NT Server	

Implications and Dependencies

Novell is moving from Netware platform to SUSE Linux platform.

Roadmap Notes
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DISCIPLINE: Directory, Network OS (Cont'd)

Discipline Roadmap for: Directory, Network OS

- **Discipline Boundaries:**
  - ❑ Network OS limited to agency networks. Directory services limited to shared directories.
- **Discipline Standards:**
  - ❑ Directories must be LDAP compliant.
- **Migration Considerations:**
  - ❑ Agencies should research and plan for migration path in regards to Novell strategy.
- **Exception Considerations:**
  - ❑ None
- **Miscellaneous Notes:**
  - ❑ None
- **Date Last Updated:**
  - ❑ January 26, 2005
- **Date Last Updated:**
  - ❑ July 26, 2006
- **Next Review Date:**
  - ❑ July 2007

DISCIPLINE: e-Mail Services

Discipline Roadmap for: e-Mail Services

Current	2 Years	5 Years

Baseline Environment

MS Exchange
MS Exchange 2000
MS Exchange 5.5
Novell Groupwise
Novell GroupWise 5.5
Novell GroupWise 6
Novell GroupWise (5, 6) Internet Agent
Novell GroupWise (5, 6) Webaccess Agent
Lotus Domino
Sendmail

Tactical Deployment

(Based on business needs)

Strategic Direction

Market watch

Shared	Agency
✓	✓

Retirement Targets

Mainstream Platforms

MS Exchange, GroupWise

Containment Targets

Lotus Domino, SendMail

Emerging Platforms

Implications and Dependencies

Roadmap Notes
Need web access to check email remotely

- **Discipline Boundaries:**
  - ❑ N/A
- **Discipline Standards:**
  - ❑ As stated under tactical deployment
- **Migration Considerations:**
  - ❑ Recommendations for migration to the recommended standards will be made upon completion of the business case analysis on an agency by agency basis.
- **Exception Considerations:**
  - ❑ N/A
- **Miscellaneous Notes:**
  - ❑ Need continuous input from the Security Domain Subcommittee.
- **Established Date**
  - ❑ April 28, 2004
- **Date Last Updated:**
  - ❑ July 26, 2006
- **Next Review Date:**
  - ❑ July 2007

E-MAIL BASELINE

In May of this year, the Division of the State CIO conducted a survey of the various e-mail systems currently in use in South Carolina state government. The survey, which was done at the request of the State Architecture Oversight Committee (AOC), was completed on June 15, 2004. The findings are presented below.

GroupWise

Agency	# of Users
Attorney General	250
Consumer Affairs	47
DHEC	5000
Dept. Mental Health	3704
Dept. Health & Human Serv.	2000
Dept. of Education	795
Dept. of Revenue	750
Div. of State CIO	371
Election Commission	20
Ethics Commission	9
General Services	300
Governor's Office OEPP	250
Human Affairs	46
Human Resources	45
Insurance Department	100
John de la Howe	65
Research & Statistical Serv.	80
Second Injury Fund	23
(18 agencies)	13,855

Other Systems

Agency	# of Licenses
Appellate Defense (*InfoAve.com*)	14
Comm. on Prosecution	10
DSS (*Lotus Notes*)	3500
Minority Affairs Commission	7
Procurement Review Panel (*Earthlink*)	2
Sea Grants Consortium (*MS Outlook*)	15
Sec. of State (*MS Outlook Express*)	15
State Library (*SMTP/Multinet*)	48
Tech & Comp Educ Bd (*MS Outlook*)	100
Tuition Grants (*MS Outlook*)	4
(10 agencies)	3,715

MS Exchange

Agency	# of Users
Admin. Law Judge Div.	20
Archives & History	100
Dept. of Commerce	150
Commission for the Blind	150
Comptroller General	73
Dept. Alcohol & Drug Abuse	80
Dept. Disabilities & Sp. Needs	750
Dept. Motor Vehicles	1500
Dept. Natural Resources	715
Dept. of Corrections	750
Dept. of Transportation	2600
Forestry Commission	120
Higher Education Comm.	60
Housing Dev't. Auth.	125
Insurance Department	100
Judicial Department	650
Legislative Audit Council	15
Labor, Licensing & Regulation	400
Lottery Commission	150
Patriot's Point	140
Parks, Recreation and Tourism	330
Public Service Comm.	82
Retirement Systems	300
SLED	510
State Accident Fund	100
State Auditor	56
State Museum	150
Vocational Rehabilitation	1000
Wil Lou Gray Opp. School	68
Worker's Compensation	58
(30 agencies)	11,302

GroupWise

Schools	# of Users
MUSC	6000
USC	6300
(2 schools)	12,300

Other Systems

Schools	# of Licenses
Cent. Car. Tech (*Campus Pipeline*)	4000
Citadel (*Stalker's Communigate*)	3000
Clemson (*Eudora, MS Outlook, Pegasus, Netscape Mail, SquirrelMail, MacOS X, Unix/Linux system*)	57,500
Coastal Carolina (*Sendmail*)	13,485
College of Charleston (*Sendmail*)	12,000
Francis Marion Univ (*TMDF/DEC*)	600
Horry-Georgetown Tech (*iPlanet*)	12,713
MUSC (*IMAP/Esys*)	2500
Tri-County Tech (*Netscape*)	11,000
Winthrop University (*IPSwitch*)	6000
(10 schools)	122,798

MS Exchange

Schools	# of Users
Aiken Tech	200
Central Carolina Tech	350
College of Charleston	1500
Denmark Tech	70
Horry-Georgetown Tech	421
Midlands Tech	1550
Northeast Tech	130
Orangeburg-Calhoun Tech	250
Spartanburg Tech	500
SC State University	5000
Tech. Col. of the Low Cntry.	200
Trident Tech	1465
Williamsburg Tech	60
Winthrop Univ.	1000
York Tech	300
(15 schools)	12,996

July 8, 2004